



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,955	06/02/2000	Stephen Francis Bush	RD-26,450/USA	5231
6147	7590	03/24/2004	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 SCHENECTADY, NY 12301-0008			WONG, BLANCHE	
			ART UNIT	PAPER NUMBER
			2667	

DATE MAILED: 03/24/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/584,955

Applicant(s)

BUSH, STEPHEN FRANCIS

Examiner

Blanche Wong

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date No.2/Jun 2,2000.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(b) because they are incomplete – Figure 4 is missing; memory 120 and processor 121 are not clearly marked. 37 CFR 1.83(b) reads as follows:

When the invention consists of an improvement on an old machine the drawing must when possible exhibit, in one or more views, the improved portion itself, disconnected from the old structure, and also in another view, so much only of the old structure as will suffice to show the connection of the invention therewith.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because inconsistencies:

Specification discloses an earth station 14, but in Fig. 1-3, earth station 14 are labeled differently: ground station node, First Ground Station Node, and Satellite dish respectively. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification discloses time stamp 412 and trash 420 in Fig. 4, but they are found in Fig. 3.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 10 (communication network)(does not appear in drawing), 100 (does not appear in specification), 310 (stack)(does not appear in drawing), and 410 (object)(does

not appear in drawing). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. On p.1, ln. 19, Therefor should be spelled Therefore.
5. On p.2, under BRIEF DESCRIPTION OF THE DRAWINGS, description of Figure 4 is missing.
6. On p.6, ln. 22, reference number 316 should be inserted after a network layer; ln. 23, reference number 318 should be inserted after a transport layer; and ln. 24, reference number 320 should be inserted after an application layer.

Claim Rejections - 35 USC § 112

7. Claim 20 recites the limitation "said step of executing said executable code ... " in ln.1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1,6,10,13** are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Falk et al. (U.S. Pat No. 6,580,716).

Regarding claims 1,6,13, Falk discloses a communication network Fig. 1 comprising a plurality of nodes (102,104,106) including at least one earth station (UET or user earth terminal 102,106) and at least one spacecraft (satellite 104) (On p. 2, ln. 16, of the application, "spacecraft" refers to any man-made vehicle; A satellite is a man-made vehicle) wherein said spacecraft 104 comprises an active node 112 (ATM switch functions)(On p. 6, ln. 15, of the application, "active node" is a node comprising a node operating system and at least one node execution environment; A switch functions as an operating system and ATM is an execution environment).

Regarding claims 10 and 13, Falk discloses the transmission of ATM switch coordination information between UET and Satellite 206 (said earth station ... transmit at least one object to said spacecraft active node).

10. **Claim 21** is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Falk (U.S. Pat No. 6,430,167).

Regarding claim 21, Falk is a communication network Fig. 1 including at least one spacecraft node 12 and at least one earth station node 16, transmitting 32 from earth station node to spacecraft information to which said data is to be forwarded 30 (destination address).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 2-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk 6,580,716 in view of Black et al. (U.S. Pat No. 6,377,561).

Regarding claims 2 and 3, Falk discloses the network of claim 1. (See para. 8) However, Falk fails to disclose a spacecraft active node that includes a physical layer, a link layer and a network layer conforming to a protocol of an OSI reference model, as recited in claims 2 and 3. Black discloses a physical layer, a link layer and a network layer conforming to a protocol of an OSI reference model, as recited in claims 2 and 3. Black shows that the satellite system serves as a subnetwork of the Internet and is an overall interface to the terrestrial communications protocol. Col. 29, ln. 28-43. At the time of invention was made, it would have been prima facie obvious to one of ordinary skill in the art to include in Falk OSI layers as taught by Black, in order to provide optimized dynamic bandwidth-on-demand on a packet-by-packet basis. Black, col. 2, ln. 22-27.

13. **Claims 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk and Black as applied to claims 2-3 above, and further in view of Bishop, Jr. et al. (U.S. Pat No. 6,078,577).

Regarding claims 4 and 5, the combination of Falk and Black discloses the network of claim 3. (See para. 11) However, Black fails to disclose a spacecraft active node that includes a transport layer and an application layer conforming to a protocol of an OSI reference model, as recited in claims 4 and 5. Bishop discloses a spacecraft active node that includes a transport layer and an application layer conforming to a protocol of an OSI reference model, as recited in claims 4 and 5. Bishop shows subscriber units 30 that may be located anywhere on the surface of earth or in the atmosphere above earth, for example in an airplane 32 (On p.2, ln. 16, of the application, "spacecraft" refers to any man-made vehicle; An airplane is a man-made vehicle), and the subscriber units 30 may be computers capable of sending email messages. Col. 2, ln. 59-col. 3, ln. 4. (To send an email message requires creating an email with an email application residing on an application layer and sending the email via a transport layer. The transport layer connects to the network layer and the email message is enveloped in a data link layer and physically delivered through a physical layer.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the combination of Falk and Black, an application layer and a transport layer as taught in Bishop, in order to increase utilization (e.g. email) of available channels and bandwidth. Bishop, col. 1, ln.30-34.

14. **Claims 7-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk in view of Wiedeman (U.S. Pat No. 5,594,780).

Regarding claims 7-9, Falk discloses the network of claim 1. However, Falk fails to explicitly recite terrestrial data link. Wiedeman discloses at least one terrestrial-

based gateway 12,14,16,18; a plurality of terrestrial communications links 101 (terrestrial data link); PSTN 21; cellular telephone 503,505 (wireless data link). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Falk and Wiedeman to offer substantial advantages while integrating with existing telephone systems. Wiedeman, col. 3, ln. 36-49.

15. **Claims 11-12 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk 6,580,716 and Black as applied to claims 2-3 above, and further in view of Falk (U.S. Pat No. 6,430,167).

Regarding claims 11-12 and 19, the combination of Falk 6,580,716 and Black discloses the network of claim 2. However, Falk 6,580,716 fails to explicitly recite TCP/IP transmission protocol. Falk 6,430,167 clearly discloses destination addressing (Fig. 3) and supports ATM (col. 3, ln. 66-67). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Black and both Falk's in order to achieve higher order adaptation. Falk 6,430,167, col. 3, ln. 65-col. 4, ln. 4.

16. **Claim 14-18** rejected under 35 U.S.C. 103(a) as being unpatentable over Falk 6,580,716 in view of Bishop, Jr. et al. (U.S. Pat No. 6,078,577).

Regarding claims 14-18, Falk discloses a method of communication over a network Fig. 1 comprising at least one earth station (UET or user earth terminal 102,106) and at least one spacecraft (satellite 104) (On p. 2, ln. 16, of the application, "spacecraft" refers to any man-made vehicle; A satellite is a man-made vehicle), as recited in claim 14. Falk also discloses transmitting an object from the group consisting

of an earth station to a spacecraft (the transmission of ATM switch coordination information between UET and Satellite 206) and the object comprising data conforming to at least one protocol and at least one method comprising an executive code for implementing said protocol of said data (coordination information can be protocol and executable code), the spacecraft receiving the object (transmission between two stations is both transmitting and receiving at both ends), the spacecraft extracting at least said executable code from said object and temporarily storing at least said executable code in memory (extraction and buffering is inherently necessary to receive and thus make sense of the coordination information), as recited in claim 14.

However, Falk fails to disclose a method for dynamically configuring a spacecraft in accordance with an OSI reference model and a spacecraft that executes said code for implementing at least one layer of an OSI reference model, as recited in claim 14. Bishop discloses a method for dynamically configuring a spacecraft in accordance with an OSI reference model and a spacecraft that executes said code for implementing at least one layer of an OSI reference model, as recited in claim 14. Falk fails to disclose the method according to claim 14 wherein said at least one layer comprises a physical layer, a data link layer, a network layer, a transport layer and an application layer, as recited in claims 15-18.

Bishop shows a method for dynamically configuring a spacecraft (subscriber units 30 that may be located anywhere on the surface of earth or in the atmosphere above earth, for example in an airplane 32. Col. 2, ln. 59-61. The applicant refers to a "spacecraft" as any man-made vehicle. P.2, ln. 16. An airplane is a man-made vehicle.)

in accordance with an OSI reference model and a spacecraft that executes said code for implementing at least one layer of an OSI reference model (the subscriber units 30 may be computers capable of sending email messages. Col. 3, ln. 1-4.), as recited in claim 14. Bishop shows a physical layer, a data link layer, a network layer, a transport layer and an application layer (To send an email message requires creating an email with an email application residing on an application layer and sending the email via a transport layer. The transport layer connects to the network layer and the email message is enveloped in a data link layer and physically delivered through a physical layer.), as recited in claims 15-18. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the combination of Falk, an OSI reference model as taught in Bishop, in order to increase utilization (e.g. email) of available channels and bandwidth. Bishop, col. 1, ln.30-34.

17. **Claim 20** rejected under 35 U.S.C. 103(a) as being unpatentable over Falk 6,580,716 in view of Falk 6,430,167.

Regarding claim 20, Falk 6,580,716 teaches the method according to claim 1. (See para. 9) However, Falk 6,580,716 fails to include at least one of the steps of data fusion and packet dropping in a step of executing said executable code, as recited in claim 20. Falk 6,430,167 discloses a step of executing said executable code that includes at least one of the steps of data fusion and packet dropping, as recited in claim 20. Falk 6,430,167 shows steps to divide the message and reassemble back into the original message (data fusion)(col. 2, ln. 12-29) and a scheme to send data in a connectionless manner over a system which supports connection-oriented

communications (connection-oriented communication is used when resources need to be nailed down to guarantee that the data is received (col. 1, ln. 15-17) whereas connectionless communication are traditionally associated with networks where an association between a sender and receiver exists on a per-packet basis (col. 2, ln. 31-35). Connectionless protocol is a "best-effort" protocol (col. 1, ln. 44) and therefore some packet can drop during communication.)(packet dropping).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Falk 6,580,716 to include data fusion and packet dropping as taught in Falk 6,430,167, in order to take advantage of the broadcast capabilities of a satellite system. Falk 6,430,167, col. 4, ln. 1.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Falk (U.S. Pat No. 6,404,749) discloses a method for providing connectionless data services over a connection-oriented satellite network.

Yuan et al. (U.S. Pat No. 6,310,893) discloses a method and system for connectionless communication in a cell relay satellite network. A plurality of nodes 100a-m and IP networks 120,130 shown in Fig. 1. OSI Reference Model usage can be found in Fig. 3-7.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blanche Wong whose telephone number is 703-305-8963. The examiner can normally be reached on Monday through Friday, 830am to 530pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H Pham can be reached on 703-305-4378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BW
March 8, 2004

KWANG BIN YAO
PRIMARY EXAMINER

